

BRIEF COMMUNICATIONS

SEED OILS OF THREE REPRESENTATIVES OF THE FAMILY Cruciferae*

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UDC 547.915+665.3

In order to determine biochemical features of species of the family Cruciferae we have studied the seed oils of *Lepidium draba* (pepperweed whitetop), *Lepidium latifolium*, (broad-leaved pepperweed) and *Matthiola annua* (annual stock) (Tables 1 and 2). The oils were isolated by the Soxhlet method. The methyl esters of the fatty acids were obtained by the direct methylation of the oils, and these were analyzed on a Tsvet chromatograph [2]. The acids were identified by the internal-standard method and by comparing retention times with those of known samples.

The results of the investigation and literature information showed that the oils of some species of pepperweed do not contain erucic acid. It is also absent from the oils of many species of the stock genus, which contain large amounts of linolenic acid (59-66%) and have a high iodine number (190-198) [3, 4]. Only in two papers is the presence of erucic acid in the oils of stocks reported - 13.1% [5] and 41.42% [6], with iodine Nos. 139.4 and 110.2, respectively.

TABLE 1. Some Physical and Chemical Properties of the Oils

Index	Lepidium draba		Lepidium latifolium		Matthiola annua	
	oil	fatty acids	oil	fatty acids	oil	fatty acids
Oil content of the seeds, %	14,63	—	24,05	—	18,43	—
Refractive index, n_D^{20}	1,4760	—	1,4781	—	1,4810	—
Relative viscosity, E_{20}^0	8,61	—	8,66	—	7,12	—
Acid No., mg KOH	1,83	—	0,50	—	4,02	—
Saponification No., mg KOH/g	177,26	—	175,53	—	190,42	—
Iodine No., % I	135,53	146,27	172,27	173,54	183,76	185,50
Thiocyanogen No., % I	97,23	98,85	104,79	107,91	116,43	120,29
Neutralization number, mg KOH	—	189,87	—	193,75	—	199,56
Mean molecular weight	—	295,52	—	289,60	—	281,67
Reichert-Meissl No., %	4,82	—	1,86	—	2,42	—
Polenske No., %	0,45	—	0,25	—	0,43	—
Unsaponifiables, %	1,13	—	0,69	—	0,76	—
Phosphatides, %	0,03	—	0,11	—	0,16	—

* For Communication II, see [1].

Zaporozh'e Medical Institute. Ukraine Branch of the All-Union Scientific-Research Institute of Fats. Translated from *Khimiya Prirodnykh Soedinenii*, No. 5, pp. 650-652, September-October, 1975. Original article submitted April 4, 1975.

TABLE 2. Amounts of Fatty Acids in the Oils, %

Index of the acid	Lepidium draba	Lepidium latifolium	Matthiola annua	Index of the acid	Lepidium draba	Lepidium latifolium	Matthiola annua
C _{6:0}	—	—	Tr.	C _{18:0}	1,20	3,03	3,17
C _{8:0}	Tr.	—	—	C _{18:1}	17,20	17,59	11,90
C _{10:0}		—	—	C _{18:2}	16,10	32,53	10,49
C _{12:0}	0,05	—	—	C _{18:3}	31,46	35,22	62,85
C _{14:0}		0,08	0,22	C _{20:1}	7,53	5,87	—
C _{15:0}	Tr.	—	0,06	C _{20:2}	0,81	0,69	0,93
C _{15:1}		—	—	C _{22:0}	0,93	Tr.	—
C _{16:0}	7,0	4,76	9,63	C _{22:1}	13,60	—	—
C _{16:1}	0,21	0,23	0,54	C _{22:2}	0,60	—	—
C _{17:0}	0,05	Tr.	0,11	C _{24:0}	1,11	—	—
C _{17:1}	0,08	—	0,10	C _{24:1}	2,07	—	—

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